EXHIBIT 13

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

IN RE: HIGH-TECH EMPLOYEE)
ANTITRUST LITIGATION)
) No. 11-CV-2509-LHK
THIS DOCUMENT RELATES TO:)
ALL ACTIONS.)
______________________________)

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VIDEO DEPOSITION OF KEVIN M. MURPHY, Ph.D.

December 3, 2012

REPORTED BY: GINA V. CARBONE, CSR NO. 8249, RPR, CCRR

10:07:51 Go ahead and finish and then I have an objection.
10:07:54 Didn't mean to interrupt.
10:07:55 MR. GLACKIN: I'm finished.
10:07:56 MR. HINMAN: Okay. Misstates what this says,
10:07:57 which is the combined impact.
10:08:02 You can answer.
10:08:02 THE WITNESS: Yeah. It's the combined impact.
10:08:05 And essentially the way to think about it is you
10:08:08 basically multiply those two numbers together.
10:08:10 So if I tell you that second number is very,
10:08:12 very small, and that first number is, you know,
10:08:16 certainly less than a hundred percent, we know that for
10:08:18 sure because it's got to be between 0 percent and a
10:08:22 hundred percent. That you put those two pieces
10:08:24 together, and that tells you it's a very small number.
10:08:27 Because a number less than 1 multiplied by a very small
10:08:32 number is still a very small number.
10:08:35 So now the fact is that there are lots of other
10:08:38 ways to recruit people. That is a fact. But, you know,
10:08:43 given how -- given the second number, it really tells
10:08:47 them, you know, you are bounded above by that second
10:08:51 number. And that's important to realize.
10:09:02 MR. GLACKIN: Q. Now, you mentioned your
10:09:03 understanding of the agreements. I'll help you out
10:09:05 here and I'll point you to your footnote 8 which is

10:09:08 where you state your understanding of the
10:09:10 agreements.
10:09:21 And I'll direct you, in particular, to the last
10:09:23 sentence. I'm sure you are familiar with this since you
10:09:25 wrote it.
10:09:26 A. This is according to Dr. Leamer.
10:09:29 Q. I'm directing you to the last sentence of the
10:09:31 footnote, if you don't mind.
10:09:33 MR. HINMAN: Still don't have a question
10:09:34 pending, just for the record.
10:09:37 MR. GLACKIN: I'm waiting for him to
10:09:38 acknowledge that he's --
10:09:39 MR. HINMAN: Just for the record.
10:09:40 THE WITNESS: I'm there.
10:09:41 MR. GLACKIN: Trying to help him out.
10:09:43 Q. You see the last sentence where it says, "My
10:09:45 understanding of the do-not cold call restrictions at
10:09:47 issue"?
10:09:52 A. Yeah. That's generally my understanding.
10:09:54 Q. Okay. How did you arrive at that
10:09:57 understanding?
10:10:01 A. From the -- I think that was the general
10:10:04 message we got from talking to people on the interviews.
10:10:10 I think the other thing that you take away is that it
10:10:17 was applied differently by different people, even within

the same organization. That it just -- there wasn't a hard -- most cases a hard and fast set of rules that people followed. And, you know, I think -- but I think this was the general context that people said that's sort of what cold calling meant to us.

Q. Did the do-not-cold-calling agreements, as you understood them, apply to recruiting -- excuse me, referral activity or the referral channels?

MR. HINMAN: Objection.

THE WITNESS: I think generally my understanding is that they wouldn't. There may be specific cases where somebody interpreted it that way.

So again, I think there was a variation in the way people interpreted these things. But I think the evidence is that people did continue to recruit and hire from the other firms.

MR. GLACKIN: Q. Did -- are you familiar with the idea of networking as a method of recruiting?

A. Yeah. I mean, networking generally, yes. And networking as a method of recruiting.

Q. Well, are you familiar -- did any of the people you talked to, of the defendants for the purposes of creating the report, talk to you about networking as a method of recruiting?

10:11:36 A. They did. They talked about, you know,
10:11:39 networking in the sense of keeping in contact with
10:11:42 people and trying to find out what was going on.
10:11:44 They talked about it more explicitly in terms
10:11:48 of explicit networking sites, things like LinkedIn and
10:11:52 places like that, to try to help people network. Yeah,
10:11:55 so they talked about it kind of in an informal as well
10:11:58 as a more formal way.
10:12:00 Q. Did you -- under your understanding of the
10:12:08 do-not-cold-call agreements, did they apply to
10:12:10 networking as a recruiting method?
10:12:13 A. I think it would depend on the nature of the
10:12:15 networking. If somebody reached out to you and, you
10:12:20 know, had made it clear they were looking for a job or
10:12:23 something like that, my understanding is that it
10:12:29 generally wouldn't have applied in that context.
10:12:31 I'm sure there is some gray areas in between
10:12:33 where whether the person is reaching out or not is not
10:12:35 clear. And probably different people interpreted it
10:12:39 different ways.
10:12:40 Q. Let me ask you this question. Suppose that you
10:12:44 have -- suppose Google and Apple, okay, suppose there is
10:12:48 an open position at Google. Somebody -- another Google
10:12:52 employee knows somebody at Apple that he or she thinks
10:12:55 would be a good fit for that position. Would it be

10:12:59 okay, under the do-not-cold-call agreement between
10:13:03 Google and Apple, for that employee to refer that name
10:13:08 to a sourcer at Google? In other words, go to the
10:13:11 sourcer and say, "I know somebody at Apple who would be
10:13:13 a good fit for this. It's my buddy. I haven't talked
10:13:16 to him but you should call him." Would that be okay?
10:13:19 A. I don't recall the specifics of Google or Apple
10:13:21 or any of the other ones. I know that some people said
10:13:25 that was -- that would be fine.
10:13:28 Q. Did anybody say it wouldn't be fine?
10:13:31 A. I think the people would say it varied. That,
10:13:34 you know, I think that's the best information that I
10:13:36 have.
10:13:38 I don't profess -- what was important to me is
10:13:42 there were multiple ways to recruit people, and there
10:13:44 were still channels open to recruit from those firms, as
10:13:48 well as availability to recruit from lots of other
10:13:50 firms. That was what was important to me as an
10:13:53 economist.
10:13:55 And that certainly seemed to be borne out by
10:13:59 both what they said in terms of the interviews, what
10:14:02 they have in their declarations, and finally what they
10:14:05 had in terms of the actual data.
10:14:13 Q. So what did Mr. Vijungco say to you about
10:14:24 whether or not he understood the do-not-cold-call

10:14:26 agreement to apply to the referral channels of
10:14:32 recruiting?
10:14:33 A. I don't recall specifically what he said.
10:14:36 MR. GLACKIN: Could we have Mr. Vijungco's
10:14:40 declaration, please.
10:14:46 We'll now mark 409.
10:14:57 (Whereupon, Exhibit 409 was marked for
10:14:57 identification.)
10:14:58 MR. GLACKIN: I've handed you a declaration of
10:15:02 Jeff Vijuncgo. Can you look at paragraph 29, please.
10:15:17 Do you see there paragraph 29 under Adobe Apple
10:15:21 Cold-Calling Agreement?
10:15:22 A. Yes.
10:15:22 Q. Okay. Does that refresh your memory about what
10:15:25 you understood about the Adobe-Apple cold calling
10:15:28 agreement, no-cold-calling agreement, in terms of
10:15:32 whether or not it applied to referrals?
10:15:36 A. Yeah. I mean, I think this gives you a general
10:15:38 statement. I think this tells you that there were still
10:15:41 available ways to hire people from Apple. And that's
10:15:44 the context in which I took it.
10:15:47 Q. Well, do you understand he's saying, "Under
10:15:49 this agreement, hiring from Apple was never prohibited
10:15:52 and there was no limitation on recruiting through other
10:15:56 channels, including networking, employee referrals," and

10:16:00 so forth. Do you see that sentence?
10:16:02 A. Yes.
10:16:03 Q. So -- and you relied on this in formulating your -- the opinions you stated in your report, correct?
10:16:10 A. I don't know if I relied on that specific. I think what I relied on is the fact that there were many other channels available. That's really what I relied on. And that was what was important for my analysis. There were other ways to recruit people.
10:16:25 Q. So are you saying that whether or not the Apple-Adobe agreement applied to the referral channel, that's not important to your analysis?
10:16:35 A. I don't think at the end of the day that would change your opinion one way or the other. I think when you say did it apply, did it mean did they still pursue referrals. Are there some cases where they didn't.
10:16:45 You know, there may be -- there may be cases where they didn't follow up or cases where they did. But what's important is that there are lots of other ways to recruit people and there are lots of other places to recruit from. That's really what I relied on.
10:16:58 So I relied on this in a much more general level, because I think it really was that. That it describes the background for doing my quantitative analysis.

10:55:32 Do you agree with me that this is the same
10:55:34 definition of the agreements that Dr. Leamer used in his
10:55:38 report as you've summarized it in your footnote 8?
10:55:46 A. Yeah. I think that is the same -- it's the
10:55:51 same words.
10:55:53 Q. So you think the Department of Justice got it
10:55:55 wrong?
10:55:58 A. I think if you look at the kinds of contacts
10:56:04 that people made, some of those contacts would not fit
10:56:07 within that category. That they would fall within cases
10:56:11 where people contacted people who had not applied for
10:56:19 that specific job.
10:56:21 Q. So I want to make sure I understand something.
10:56:23 You think that the statements by the defendants'
10:56:27 employees that were made to you privately in the context
10:56:31 of the civil litigation are more reliable than documents
10:56:35 that they created years ago when the agreements were in
10:56:38 force, and they're also more reliable than the
10:56:42 Department of Justice's Competitive Impact Statement.
10:56:44 Is that what you are saying?
10:56:44 A. No, I'm not. I'm saying if you look at even
10:56:51 the discussions that people have. I mean, if you go
10:56:53 back and look at those emails, there is disagreements as
10:56:56 to how and -- how these things apply. That people --
10:57:03 there was not uniform opinion, even within the company,

10:57:06 as to how these things applied.
10:57:10 Q. Did Mr. Vijungco, in his declaration to you,
10:57:12 say that there were disagreements or not a uniform
10:57:16 opinion about how the agreements applied at Adobe? Did
10:57:20 he say that?
10:57:21 A. Yes, I believe he did.
10:57:22 Q. Can we have Mr. Vijungco's declaration back. I
10:57:26 guess you have it already, right?
10:57:34 Can you point me to the part of his declaration
10:57:35 where he says there is some uncertainty about what the
10:57:38 agreements applied and didn't apply to?
10:57:40 A. I don't think he said in this declaration. I
10:57:42 can see --
10:57:49 Q. Well, my question was, did Mr. Vijungco say in
10:57:52 his declaration that there were disagreements or not a
10:57:54 uniform opinion as to how the agreements applied at
10:57:56 Adobe? Did he say that? Answer, "Yes, I believe he
10:57:59 did."
10:58:00 So please point me to the part of his
10:58:02 declaration that you are referring to.
10:58:05 A. Oh, I'm sorry. I was referring to the
10:58:09 interview I had with him. I'm sorry.
10:58:10 Q. So he didn't say it in his declaration but he
10:58:13 did say it in his interview?
10:58:14 A. I believe that's the case, yes.

Q. Do you know who drafted this declaration?

A. No, I didn't -- I don't know particularly who drafted it.

Q. So if there is a conflict between the declaration and the interview, how do you resolve that conflict?

A. There is not a conflict. He doesn't say in his declaration that things were uniformly applied across recruiters. That each recruiter did things exactly the same way. I don't see where in his declaration he says that. I don't think there is a conflict between those two things.

Q. Did it strike you that that uncertainty about how the agreement was applied was omitted from his declaration when you read it for the first time?

A. No. I mean, I think what he said in here, I think, reflected his understanding. You could ask him. But I think, you know, other people have been deposed in this case I think have said the same thing. That the precise contours of these things weren't -- you know, weren't firmly defined in most cases. You know, that's my understanding of what's there.

Q. So if I understood you to describe the process before, and I'm not trying to mischaracterize anything, so tell me if I got it wrong. I understood you to say

10:59:47 something like, well, first you did the interviews, you
10:59:49 don't have a total clear recollection of everything that
10:59:51 happened in every interview, and then you got the
10:59:54 declarations and the declarations became what you
10:59:56 ultimately really relied on for your report. Is that
10:59:59 fair?
10:59:59 A. I think that's true in most cases, because what
11:00:02 we were relying on -- again, I'll go back to what I said
11:00:04 before -- was the existence of multiple channels for
11:00:07 recruiting and the fact that there were lots of places
11:00:09 that people went to recruit.
11:00:11 Q. So when did you get Mr. Vijungco's declaration?
11:00:18 A. It was toward the end.
11:00:19 Q. Was it the Friday before your report was due?
11:00:21 A. I don't recall the precise date, but it would
11:00:24 have been close to the end of the period.
11:00:27 Q. If you look at the last page there is a date.
11:00:33 A. Okay.
11:00:33 Q. So that was November 9th, the Friday before
11:00:36 your report was due, I believe.
11:00:37 A. Probably.
11:00:38 Q. Or do I have that wrong?
11:00:41 A. That sounds right.
11:00:42 Q. Your report was filed -- what's the date on
11:00:44 your report, Dr. Murphy, help us out here.

11:00:48 A. Tuesday, maybe. Twelfth.

11:00:59 Q. Right. That was Monday the 12th.

11:01:02 So did you see any drafts of Mr. Vijungco's
11:01:09 declaration before you received the signed copy
11:01:12 presumably on November 9th?

11:01:14 A. I don't believe I saw a draft, no.

11:01:18 Q. Okay. Did you see drafts of any of the
11:01:20 declarations before you received signed copies?

11:01:22 A. I don't believe I personally did, no.

11:01:27 Q. So some of these declarations, you saw them for
11:01:30 the first time on the day that they were signed and
11:01:32 submitted to you?

11:01:35 A. I would assume so, yes.

11:01:40 Q. Didn't that make it kind of hard to write your
11:01:42 report?

11:01:43 A. No. Because I had written my report based on
11:01:45 the information we had gotten through the interviews.
11:01:47 And what I was relying on was not that specific in terms
11:01:51 of elements of the declarations. In general, it was
11:01:55 relying on the general background, as I've said numerous
11:01:59 times, and I think in that regard, I think the
11:02:03 information from the interviews and the information from
11:02:06 the declarations. It's just at the end of the day,
11:02:09 given we had the declarations, made more sense to rely
11:02:12 upon them.

11:02:12 Q. Did you read every single one of the declarations that you cite in your report before your report was filed?
11:02:23 A. I don't know if I read each and every one. I read -- I would assume I did, but I can't say for sure.
11:02:29 Q. What about the ones that came in on November 12th? There is a few that are signed November 12th, which is the day your report was due. Do you recall getting declarations on November 12th and sitting down and reading them?
11:02:39 A. I did get some declarations, I think, on that last day, and I would have read the ones that came in.
11:02:44 Q. You say you would have read them. My question is, do you remember sitting down and reading them?
11:02:48 A. I remember reading things on the last day. That there were some declarations that came in.
11:02:53 Q. Okay.
11:02:53 A. And I do -- you know, whether that was all of them, I don't know. But I do remember reading things on the last day.
11:03:08 Q. Okay. Let's look at paragraph 26. I'd like to direct your attention to the first paragraph -- the first sentence -- first few sentences of your paragraph 26 there where you describe the impact of eliminating information as a result of the challenged agreements --

11:03:43 the impact you would expect there to be is a matter of
11:03:46 economic theory. Do you see those two sentences?
11:03:49 A. Yes.
11:03:50 Q. Can you cite to me any authority supporting
11:03:59 your proposition that this is true as a matter of
11:04:01 economic theory as it pertains to the reduction of
11:04:05 information?
11:04:11 A. Well, it's true for commodities, more
11:04:16 generally, of which information is one. When you --
11:04:19 Q. I don't want us to waste a lot of time here. I
11:04:21 understand that there is a wide body of literature about
11:04:23 supply and demand as it pertains to all different kinds
11:04:26 of things. Okay?
11:04:26 So what I'm asking you is if you can cite me to
11:04:29 a particular authority that supports this proposition as
11:04:32 it pertains to the reduction of information.
11:04:36 A. Yeah.
11:04:36 Q. Something that actually talks about the
11:04:37 reduction of information.
11:04:38 A. Yeah. Probably could go back and look at some
11:04:42 of the old Stigler stuff on the economics of
11:04:44 information. I think he would talk about kind of the
11:04:49 supply and demand implications.
11:04:51 Q. So your support for that would be the work of
11:04:54 George Stigler. Anyone else?

11:04:58 A. I mean, there is a ton of work in economics on economics of information. There are entire textbooks on economics of information.

11:05:04 Q. Well, you didn't cite any of them in paragraph 26. So can you tell me one that supports what you are asserting here?

11:05:11 A. Yeah. Like I said, the work of Stigler. But more generally, this is like basic economics. We apply the same tools of economics to all sorts of commodities.

11:05:25 When I study the demand for watermelons, I don't look to see whether there is an article that talks about the demand for watermelons. We apply the same tools of economics to understand supply and demand of watermelons as we do for cantaloupes and hair cuts and all the other things. You don't say well, I don't have an article on watermelons so I don't know whether supply and demand works for watermelons.

11:05:49 Q. I'm not asking you -- for example, I'm not asking you for an article about cold calling agreements. I'm just asking you for an article about supply and demand and information. An article or a textbook. Can you cite one of those for me that supports this view as you've expressed it here?

11:05:59 MR. HINMAN: Asked and answered.

11:06:01 THE WITNESS: I think the work of Stigler will

talk about it. Any of the books on economics of information. That information is a commodity that people -- you know, that has a value. And the value you have depends on -- willing to place on additional information, depends on how much you have, and the sources of supply. It's the same principles we apply more generally. Frankly, I didn't think there was a need to get a cite given it's just so fundamental to economics.

MR. GLACKIN: Q. So would you agree with me, then, that if the impact is a matter of the function of supply and demand, that if there is some restriction in the supply of information as a result of these agreements, there will be at least some impact?

A. Well, when you say impact, you mean common impact? That's what's at issue in this case. Would there be a common impact across individuals? That's the issue we have before us here. And, in fact, if you do an economic analysis based on that analysis, supply and demand tells you there won't be a common impact.

Q. Supply and demand of information?

A. Yeah. They're not going to be a common impact. Because you have in here one source of supply changing. And when one source of supply changes, it has different

11:13:12 Q. And let's look at the sentence at the bottom of page 19, which is the sentence that footnote 35 supports. "If hiring by one Defendant of employees from another Defendant were economically important in the price-discovery process, then employee movement between Defendants should account for a substantial part of the overall movement of workers."

11:13:37 So do you agree with me now that footnote 35 is about 2, which is the -- proposition 2 in paragraph 27 which is the level of interdefendant hiring relative to other sources of hiring?

11:13:47 A. It has relevance in both, but yes.

11:13:50 Q. Okay.

11:13:50 A. I mean, the point I'm making here is, in the footnote, is that when you are hiring people, and you are interview -- you interview people and you ultimately make offers to hire people, people get information about what the terms of that offer is. And that's typically when the terms of offers are discussed, is later in the process.

11:14:13 And that would be true if you got that information from -- if you got to that point in the process because you were a referral, because you got a cold call or whether you applied to the website, or I met through networking. Whatever it was. You know, you

11:14:31 are still going to get information flow at that end stage.
11:14:35 Q. So great. I think you've -- I think you've pretty well summarized footnote 35. Thank you.
11:14:42 So my question is, you cite two declarations here, the declarations of Jeff Vijungco and declaration of Chris Galy, as support for this proposition about when compensation is discussed in the hiring process.
11:14:59 Do you have any support for that other than those two declarations?
11:15:07 A. I -- you know, I -- that's my understanding from the discussions we had as well, that that's when salaries are typically discussed. I think there is -- I think people have been asked about this as well, and that's certainly the evidence that I've seen.
11:15:24 Q. You mean -- when you say discussions, are you saying that people said this to you in interviews, whose names you can't remember, that then wasn't ultimately reflected in a declaration? People other than Mr. Vijungco and Mr. Galy? Are you saying you don't remember? What's the answer?
11:15:43 MR. HINMAN: Is this now the memory test? Are we at that part of the deposition?
11:15:46 MR. GLACKIN: Well, we are, since there is no notes or statements from any of these witnesses --

11:15:49 MR. HINMAN: Well, he does -- I believe -- I mean, I think the sources are probably identified in the report here.

11:15:54 MR. GLACKIN: The sources are there, but there is no notes or summaries of what happened in the interviews. So yeah, all I have is his memory, Frank. If you want to give me something else, I'll go with it.

11:16:05 THE WITNESS: Certainly anybody who discussed the issue of salaries and when they came up always talked about them showing up at the later stages of the process. That was -- that's generally how things proceed.

11:16:18 MR. GLACKIN: Q. My question is, did anybody tell you that besides Mr. Vijungco or Mr. Galy, and if so, who was it and what did they say?

11:16:28 A. I don't have a specific recollection.

11:16:29 Q. But you are relying on -- are you relying on this general recollection that people may have said this to you --

11:16:34 A. No.

11:16:34 Q. -- as a part of the basis for footnote 35, or are you only relying on the declaration of Jeff Vijungco and Mr. Galy?

11:16:44 A. I think specifically I'm relying on those

12:19:35 vary across the defendants?

12:19:37 A. For a couple of reasons. One is the more scope
12:19:41 you have to individualize. And the more scope you have
12:19:47 to do that in ways that are maybe less directly
12:19:50 observable to people, or -- which is one of the reasons
12:19:54 why people can use different forms of compensation.
12:19:58 That can make it easier to give people -- you don't have
12:20:00 to make it so permanent as you would with salary. So if
12:20:03 you want to give somebody an extra amount, and you do it
12:20:08 through equity or through a bonus, it's not as permanent
12:20:12 than if you do it through a salary component. Gives you
12:20:17 more flexibility.

12:20:19 Q. Okay. So what is your support -- well, let me
12:20:26 back up. Are you saying that this increased flexibility
12:20:30 that comes with -- well, remember individualization
12:20:35 could be formulaic, right? So it doesn't necessarily
12:20:40 imply increased flexibility, right?

12:20:42 A. But usually you set those formulas up to give
12:20:45 you some flexibility. You are trying to individualize
12:20:46 things, but this has actually been accepted in the
12:20:53 economics literature, where people have talked about the
12:20:56 use of bonuses as opposed to just salary as a way to
12:21:01 provide additional flexibility for firms to both reward
12:21:06 individuals as well as adjust compensation as times
12:21:09 change.

12:21:11 Q. So what is your support for the proposition
12:21:13 that this variability would materially change the
12:21:20 operation of internal equity across these different
12:21:24 firms -- or materially change the way internal equity
12:21:26 would apply across these different firms? What's your
12:21:29 support for that?
12:21:30 A. Because of the fact that if you have more
12:21:33 variation -- it's a matter of economics. If I have
12:21:36 greater ability to differentiate pay, then that will
12:21:39 allow me to do more.
12:21:42 Q. Are you saying that internal equity is
12:21:44 inconsistent with differentiation of pay?
12:21:46 A. No. I'm not saying internal equity is -- I'm
12:21:51 just saying the more -- more methods I have to
12:21:54 individualize pay, the easier it is to do.
12:21:58 Q. Can't individualization of pay sometimes serve
12:22:04 internal equity?
12:22:04 A. Yes. I think -- well, in the sense -- not
12:22:07 equity in the sense of paying everybody the same, but
12:22:09 equity in the sense of paying people based on
12:22:11 performance.
12:22:12 Q. Fair -- we agree equity doesn't mean equality.
12:22:17 We completely agree.
12:22:19 All right. So this is the last thing we're
12:22:23 going to do and then we'll take our lunch break. I'm

12:22:29 going to hand you now --
12:22:30 What number are we on?
12:22:31 THE REPORTER: 413.
12:22:32 MR. GLACKIN: I'm going to hand you what
12:22:33 Mr. Hinman gave me this morning.
12:22:47 (Whereupon, Exhibit 413 was marked for
12:22:47 identification.)
12:22:48 MR. GLACKIN: Q. So, Dr. Murphy, I thought
12:22:51 it would be helpful, since I have very little idea
12:22:53 of what this is, I just know what Mr. Hinman said
12:22:56 before. Maybe before we have the lunch break you
12:22:58 can give me the Readers' Digest version of this.
12:23:01 A. It would be the complete version because it's
12:23:03 pretty simple. First of all, if you look at the row
12:23:05 boxes -- the boxes to the right, they're nothing more
12:23:08 than the sum of all those numbers in a row. We thought
12:23:11 that would be helpful to add the sum of those numbers.
12:23:14 Because one of the things you do when you look at this
12:23:17 table is start adding up those numbers, so it would be
12:23:19 just as easy to have them in the table. So the ones on
12:23:22 the right are nothing more than the sum of the row
12:23:25 numbers.
12:23:26 Now, if you look at the bold black numbers that
12:23:30 are there, those numbers are helpful in the sense that
12:23:33 if you add them up all the way across, you get total

01:17:27 labor markets, in general, have perfect information?
01:17:31 A. Well, you know, perfection is always hard to
01:17:34 find. So I think we would generally think that people
01:17:36 don't have perfect information.
01:17:40 Q. In labor markets?
01:17:41 A. Well, in labor markets, and other markets. I
01:17:44 don't -- it's hard to find a place where people have
01:17:47 perfect information. I mean, perfect is a pretty high
01:17:50 standard.
01:17:51 Q. You understand -- or you agree that perfect
01:17:53 information is a term of art within the field of
01:17:56 economics, right?
01:17:57 A. Yeah. I mean, people talk about perfect
01:18:01 information as a concept.
01:18:04 Q. Okay.
01:18:05 A. Usually it's a modeling concept.
01:18:07 Q. And you agree that labor markets are not
01:18:10 typified by perfect information?
01:18:13 A. Depends on what aspect of labor markets. I
01:18:15 guess the way to think about it is economists. I'll
01:18:18 tell you how an economist thinks about it. Depending on
01:18:22 what I want to explain, would relying on the predictions
01:18:25 of a perfect information model give me the right answer
01:18:28 or not the right answer. That's what economists would
01:18:31 care about.

I think for lots of problems, the perfect information model does pretty well. For other problems it might not. Depends on what you are trying to explain. Same is true in almost every other market I can think of.

Q. Do you agree that even a small amount of information imperfection can have a profound effect on transaction prices?

A. In the abstract hypothetical?

Q. In the abstract.

A. I guess you could come up with an abstract situation in which that would happen. I think as a practical matter, that's much less likely to happen. I think you can come up with hypotheticals.

Q. Well -- so are you saying nobody has ever demonstrated that even a small of information -- excuse me -- even a small amount of information imperfection can have a profound effect on prices? You are saying nobody has ever established that?

A. I know people have built theoretical models of that type. Whether there has been -- context like this or just in any abstract context?

Q. Any abstract context.

A. You know, I can't think of one off the top of my head where people have tried to find that. I know

01:19:45 people have built theoretical models along those lines.
01:19:48 Q. What people -- I'm sorry. I didn't mean to
01:19:50 interrupt you. Go ahead.
01:19:51 A. No. You can build models. Mostly it's usually
01:19:54 on the volume of trade, much more so than it is on
01:19:57 prices. But you can have models like that, sort of
01:20:07 Akerlof lemon-type models and things like that.
01:20:10 (Reporter clarification.)
01:20:09 THE WITNESS: Akerlof, A-K-E-R-L-O-F, I think.
01:20:11 Lemons, like the fruit, type markets.
01:20:17 Where you can have big changes with, under the
01:20:21 right conditions, small changes to the information set.
01:20:26 MR. GLACKIN: Q. So you mentioned --
01:20:28 A. But I'm not -- you know, unless we're just kind
01:20:31 of off on a sojourn in economics, I don't think those
01:20:35 are very applicable to the questions at issue here. And
01:20:41 I can explain why, and I do explain why in my report.
01:20:44 But, you know, we can go down this road if you want.
01:20:47 Q. So do you agree -- when you -- you mentioned
01:20:51 Akerlof. Would that be professor George Akerlof?
01:20:54 A. Yep.
01:20:55 Q. Do you agree that Professor Akerlof is an
01:20:58 authority in the field of economics?
01:20:59 A. George is good at some things. You know, it's
01:21:03 like most economists. You are good at some things, not

an authority. I think people still think of him as an authority, but a lot of what he does, he doesn't -- he doesn't really apply the economics the way he should. I think he's -- you know, that's his prerogative. He's free to do that. But -- and I don't think I'm alone in that view at all.

Q. I'm going to read you a passage, and I'm going to ask whether or not you agree with it as a matter of theory. Contrary to the law of one price, the labor market is characterized by wage and price distributions, even when there is no exogenous source of noise in the economy, and even when all firms and workers are otherwise identical.

Do you agree with that as a statement of economic theory?

A. I think it could happen. It's certainly not a statement of reality, because firms and workers are different. So I don't think that describes the actual world. One could construct a model which that would be true in a hypothetical world, but I don't think we're in a world in which all workers and firms are identical. I think that's contradicted by the actual empirical evidence.

Q. Well, then, maybe I -- you misunderstood what I said. Do you agree that the labor market is

01:23:26 characterized by wage and price distributions?

01:23:30 A. Oh, yeah. There are wage and price
01:23:33 distributions, but that's true in lots of markets. I
01:23:40 mean, there is a distribution of TV prices and house
01:23:43 prices and banana prices and just about every other good
01:23:47 you can think about.

01:23:48 Q. Do you agree that the labor market is
01:23:51 characterized by wage and price distributions, even when
01:23:55 all firms and workers are otherwise identical?

01:23:59 A. Well, that's hard to say. Not as an empirical
01:24:03 matter, because I don't think that predicate has ever
01:24:04 been -- where have you found the place where all workers
01:24:07 and firms are identical?

01:24:08 Q. Well, I'm asking as a theoretical matter. I
01:24:11 mean, economists model theory all the time, don't they,
01:24:13 Dr. Murphy?

01:24:14 A. Well, then -- then I would say it depends on
01:24:17 the model. If it's a theoretical matter -- what's
01:24:20 confusing me is that statement says labor markets are
01:24:24 characterized by these things. As if that's -- if it
01:24:29 said "would be" or something like that, but this says
01:24:32 "are," which means it's like a reference to actual labor
01:24:35 markets. And I'm trying to think of the actual labor
01:24:38 market where all firms and workers are identical.

01:24:41 Q. Let me phrase it in a way maybe that will work.

01:24:44 Do you agree that the labor market can be characterized
01:24:48 by wage and price distributions even when there is no
01:24:53 exogenous source of noise, and even when all firms and
01:24:56 workers are otherwise identical?
01:24:59 A. I believe you could construct a model that
01:25:02 would generate that.
01:25:03 Q. Do you believe that can be true even in real
01:25:05 life, or is it impossible in real life?
01:25:09 A. I think it's hard to find a place where all the
01:25:11 workers and firms are identical. So finding the
01:25:13 real-world analog of that seems to be difficult. I
01:25:18 mean, unless you know of places that I don't. But
01:25:22 that's usually not, you know --
01:25:23 Q. I'm tempted to make a wisecrack about law
01:25:28 firms, but I won't.
01:25:31 I'm going to read you another passage and ask
01:25:32 whether or not you agree with it. The most fundamental
01:25:34 reason that markets with imperfect information differ
01:25:37 from those in which information is complete is that with
01:25:42 imperfect information, market actions or choices convey
01:25:47 information. Did you agree with that passage?
01:25:50 A. I think that's one aspect that's different.
01:25:55 You would have to reread the beginning.
01:25:57 Q. I'll read it to you again, or you can read it
01:25:59 if that's helpful.

01:26:06 A. I don't know if it's the most fundamental
01:26:08 reason. That's -- that, I'm not sure. I mean, it's
01:26:11 certainly a difference, that that's part of the
01:26:15 consequence of people not having perfect information is
01:26:17 that they get information from various sources. I don't
01:26:21 know -- I'm not sure that people would say that's the
01:26:24 most fundamental characteristic, I guess. Somebody
01:26:28 might say that, but I'm not sure that would be generally
01:26:32 accepted in economics.
01:26:34 Q. So -- and market actions or choices refers to
01:26:36 the fact that simply by doing something in the market, a
01:26:40 market actor can convey some information, right?
01:26:45 A. Yeah. They can -- sometimes they can do things
01:26:48 that convey information. Sometimes they can take
01:26:50 actions to obtain information. So yeah. Works on both
01:26:53 sides.
01:26:54 Q. Let me ask you a hypothetical question, going
01:26:56 back to Google and Adobe. Let's say that Google --
01:27:02 excuse me -- Google and Apple.
01:27:04 Let's say a Google sourcer calls up an Apple
01:27:07 employee and says, "Hey, I've got this great opportunity
01:27:09 here. Are you interested?"
01:27:10 And the Apple employee says, "Well, I just want
01:27:12 you to know, right now I'm making a hundred grand and I
01:27:16 can't -- I'm not going anywhere for less than $120,000."

01:27:23 And the sourcer from Google describes the
01:27:27 position and says, "Well, I think it makes sense for us
01:27:30 to continue in this process."
01:27:31 Do you agree that information has been conveyed
01:27:33 from Google to Apple about the compensation that might
01:27:35 be earned by the worker if he or she changes jobs?
01:27:39 A. It's possible that that individual got some
01:27:42 information from that.
01:27:44 Q. So let me give you a different hypothetical.
01:27:49 Suppose that same conversation happens, they talk about
01:27:53 the job a lot, and the Apple employee says the same
01:27:56 thing, "Well, right now I'm making a hundred grand.
01:27:59 Can't go anywhere for less than 120."
01:28:01 And the Google person just says something
01:28:04 noncommittal, like, "Okay."
01:28:06 And then a week later the Google person calls
01:28:08 the Apple person back and says, "Hi, we'd like to -- you
01:28:11 know, I'd like to have you talk to another person over
01:28:13 here at Google."
01:28:15 Would you agree that information has been
01:28:17 transmitted there to the Apple employee about what
01:28:20 compensation they might expect to be paid if they change
01:28:24 jobs?
01:28:25 A. There might be some information that particular
01:28:28 person obtained from that. Something he infers from

01:28:30 that, yes. There could be for that individual.
01:28:38 Q. Do you agree that the fact that actions convey information leads people to alter their behavior and changes how markets function?
01:28:52 A. I mean, if -- information can have effects on how people behave. And depends on what you are trying to understand how important that information is. It also depends on whether people had that information already, whether there is new information. A lot of it is going to vary with the circumstance.
01:29:15 Q. Do you agree that actors in markets sometimes create information problems deliberately?
01:29:24 A. Yeah. In some contexts. Lot of contexts they solve information problems. Goes both ways. People can try to hide information or keep information for themselves. Or -- yeah, that can happen.
01:29:40 Q. Do you agree with me that one goal of creating information problems by a market participant might be to exploit market power?
01:29:52 A. Well, that's kind of -- can go either way. I mean, information problems, it's not -- those are trickier questions because it's not clear which way they go. Sometimes having information could be good for you, sometimes not so good.
01:30:09 Q. I didn't say always, I just said can.

A. Yeah. I mean, I'm just saying I'm not sure there is a necessary link there. I -- I don't -- I guess I wouldn't say those are tightly related. They could be.

Q. Let me ask --

A. Some circumstances.

Q. Let me ask the question a different way. Do you agree it's possible that an actor in a market might create an information problem in order to exploit market power?

A. I don't know if that's -- I don't know if I would think about it that way. I mean, I think if he has value of having information that other people don't, that could occur even if he doesn't have market power. So the existence of market power, per se, doesn't seem to me to be intimately related with the answer to that question. Could benefit from information even in a competitive marketplace. In fact, a lot of times benefit even more in a competitive marketplace.

Q. Okay. I've got a new one for you.

Even small search costs could make a large difference to the behavior of product and labor markets. Do you agree with that as a theoretical possibility?

A. Depends on the context. Again, you could construct a model that does that. How applicable that

is to the kind of things we're talking about here, I would say, is dubious at best.

Q. Okay. I would like to direct your attention to paragraph 33 of your report, please.

A. Okay.

Q. So -- I'm interested in the whole paragraph, but to sort of highlight the nature of my interest, let me direct you to the sentence that begins, "The reduction."

A. Yes.

Q. Okay. "The reduction in potential hires would raise the level of recruiting of other individuals and the level of compensation required to fill the open positions, which would put upward pressure on compensation at Defendants, the opposite of the effect hypothesized by Plaintiffs."

A. Yes.

Q. Did you do anything to measure whether or not this occurred?

A. I think it's -- that wasn't the point here. This is to say the same -- the very same theory that plaintiffs put forward, that this firm is not calling a certain group of people, has this logical implication.

I think it's -- it follows from the same logic that the plaintiffs are using to make their argument.

01:38:59 something that we're analyzing from a theoretical standpoint, even the plaintiffs' story. That is, the fact that you don't hire people from one channel means you are going to hire more people from other channels. There is always going to be that kind of substitution. And a logical consequence of that is just what we talked about.

01:39:24 Q. So let me ask you this question. Now, I'm about to use the word regression. I know you don't agree with or adopt Dr. Leamer's regression, so I don't want to get off onto a tangent about that. I'm going to ask you a hypothetical question about regressions.

01:39:42 Do you agree that a properly specified and modeled regression that was seeking to model the effect of these agreements on wages would capture the effect -- any countervailing effect that caused wages to go up as a result of these possibilities that you are suggesting?

01:40:06 A. Well, even in principle, at most it could possibly capture would be some averaging of people -- of benefits for some people and losses to others. I mean, the very nature of a regression is that it looks at averages.

01:40:21 Q. I agree.

01:40:22 A. So it would not really be helpful for establishing class-wide impact. At most, it would

01:40:27 calculate net gains to one group, net of losses to another. Because that's the nature of regression in and of itself, which is, I think, the fundamental issue -- thing at issue in this phase. We're about common impact. And the regression, at best, isn't going to give you that.

01:40:49 Q. Well, I mean, there might be a dispute about what is and is not necessary to prove common impact. But do you agree that when you say the regression would capture the net gains and net losses, that the regression would capture the net effects of these possible countervailing forces?

01:41:07 MR. HINMAN: Objection. Incomplete hypothetical.

01:41:08 THE WITNESS: I didn't quite say that. I would say at best. I mean, even if you could -- if you corrected all the other issues and problems --

01:41:14 MR. GLACKIN: Q. Of course. Properly specified --

01:41:16 A. -- a regression, by its nature, is going to measure some kind of an average. That's really what regressions do. And so that's the most you could hope to identify from a regression.

01:41:27 But it's not going to help with this question, which is would there be a common impact across people.

01:41:34 It doesn't really answer that question.
01:41:39 Q. Did you attempt to perform any empirical
01:41:44 analysis of whether or not these countervailing effects
01:41:47 that you've outlined, in fact, existed?
01:41:52 A. I don't think we can identify the specific
01:41:55 individuals. That's the very nature. I mean, we do
01:41:58 know that if there had been a reduction in hiring from
01:42:03 one source, that people would hire more from other
01:42:06 sources. So we know they're in there. I don't think
01:42:09 you can find either the people that got less calls or
01:42:12 the people who got more information. I don't think you
01:42:15 can identify either set. But I think the economics
01:42:19 tells us that they're going to be both.
01:42:24 I think economics is very clear on that. There
01:42:26 are going to be both people who got additional
01:42:29 opportunities to the extent there would be anybody who
01:42:31 got less.
01:42:31 Q. Are you aware that the justice department found
01:42:35 that these agreements did have a distorting impact on
01:42:39 price in the market?
01:42:43 MR. TUBACH: Objection. Misstates the DOJ
01:42:45 findings.
01:42:46 MR. GLACKIN: Thanks for the speaking
01:42:48 objection, Michael.
01:42:49 THE WITNESS: I think you have -- in terms of

01:42:50 what they found, I don't -- we should look at it.
01:42:53 Because they're what, you know, we don't want to
01:42:59 mischaracterize what they say.
01:43:00 MR. GLACKIN: Q. You can just say no you
01:43:01 are not aware of that.
01:43:04 A. You know, I mean --
01:43:06 MR. MITTELSTAEDT: Objection. Argumentative.
01:43:07 THE WITNESS: -- I remember some things from
01:43:08 there, but I don't want to misquote them. I don't think
01:43:10 that's helpful.
01:43:11 MR. GLACKIN: Q. Well, I'm not asking you
01:43:13 to quote anything, I'm just asking you as you sit
01:43:16 here today, are you aware of the fact that the DOJ
01:43:18 found that these agreements did have a distorting
01:43:20 effect on price.
01:43:22 MR. HINMAN: Objection. Misleading.
01:43:24 Argumentative.
01:43:24 THE WITNESS: The question is, what do you mean
01:43:25 by price. Are we talking about what some individual
01:43:29 got, what happened in the market as a whole?
01:43:32 We have a particular issue in this case that's
01:43:36 different, I think, which is a question of whether there
01:43:40 was common impact across the class. And as far as I
01:43:43 know, I don't think the Department of Justice ever
01:43:46 addressed that issue.

02:50:13 you see people getting paid more and working harder, is
02:50:16 it the first story that you got to pay people more to
02:50:20 get them to work harder, or is it this gift exchange
02:50:24 story that by paying them more they'll just
02:50:26 automatically want to work harder to give you something
02:50:29 back for what you did for them.
02:50:30 That's the reason why it's controversial.
02:50:32 Because they have the same prediction. They have the
02:50:35 same prediction that the guys working harder get higher
02:50:40 wages, but they have different mechanisms by which that
02:50:44 takes place.
02:50:45 Q. So which -- which of those two senses, if
02:50:48 either, does Professor Akerlof explicate the fair wage
02:50:53 hypothesis?
02:50:53 A. I think it's more the gift exchange side.
02:50:55 That's his story. But I'm saying the people that would
02:50:58 disagree with him don't disagree that you pay people
02:51:00 more to work harder, they just disagree with the
02:51:02 mechanism by which that happens.
02:51:05 Q. So which -- and pardon the term. And I don't
02:51:08 mean anything by it, but do you fall into either one of
02:51:11 those camps? Do you have a position on this
02:51:13 disagreement?
02:51:13 A. You know, I think there is a little bit to
02:51:15 both. I think most of -- most of you have to pay people

04:12:57 "Adobe Recruiter."
04:12:59 Q. So the chart is expressed in terms of
04:13:03 percentages. Do you see that?
04:13:04 A. I do.
04:13:04 Q. How is that percentage calculated? What's the
04:13:06 numerator; what's the denominator?
04:13:09 A. So you -- the average recruiter fills 15 to 20
04:13:14 positions a quarter roughly, on average, or 60 to 80 a
04:13:16 year. And each hire is associated with a specific
04:13:20 source, whether they come from a university fair or they
04:13:25 came through a networking call, they come from a
04:13:29 recruiting agency, they applied to the Adobe.com
04:13:31 website. But as you can see, the lion's share came
04:13:35 through the employee referral program.
04:13:37 Q. Well, does this mean, for example with respect
04:13:39 to the recruiters, that for fiscal year 2009, Adobe
04:13:45 recruiters were the source of hire for 19 percent of the
04:13:51 Adobe hires during that fiscal year?
04:13:53 MR. KIERNAN: Objection. Misstates the
04:13:55 document. Says Q1-FY09, not fiscal year FY09.
04:14:01 MR. SAVERI: Excuse me. Thank you.
04:14:03 Q. Does this mean for the first quarter of fiscal
04:14:06 year 2009, that Adobe recruiters were responsible for 19
04:14:14 percent of the hires during that period?
04:14:18 A. Yeah. This is quarterly data. Q1 of 2009, it

04:14:21 appears.
04:14:24 Q. And to the best of your recollection, is the
04:14:30 information that's set forth here accurate?
04:14:32 A. I mean, assuming so, roughly, yes.
04:14:34 Q. And again, is this information taken from
04:14:36 Taleo?
04:14:39 A. The information is put in Taleo ultimately,
04:14:41 yes. By the recruiter.
04:14:47 Q. And on the next page, slide 8, could you
04:14:53 generally -- well, can you generally describe what's set
04:14:57 forth here?
04:14:57 A. Yeah. What's on page 8 is exactly the same
04:15:02 data on page 7 supposedly, but broken down by source mix
04:15:08 by major geography.
04:15:12 Q. So for example, if you look at the U.S. column,
04:15:13 which is to the right, there is 111, I guess,
04:15:17 observations. Do you see that?
04:15:19 A. Yes, I do.
04:15:19 Q. Does that mean there were 111 people hired in
04:15:23 the U.S. geographic area for this period?
04:15:26 A. That's what it assumes, yes.
04:15:27 Q. And then 40 of those were -- can be attributed
04:15:32 to the university source?
04:15:33 A. Yeah. That's high season for university, Q1.
04:15:37 Q. And I can't do the math quick enough in my

02:54:17 is considered obvious by personnel textbooks; and it
02:54:21 explains commonly observed taboos regarding discussion
02:54:24 of wages and salaries."
02:54:27 Do you agree with that discussion of why the
02:54:29 fair wage-effort hypothesis accords with common sense?
02:54:34 A. I think there is elements, but I think it gets
02:54:39 confused between these two explanations that we talked
02:54:41 about. You get paid more for working harder. You have
02:54:45 to pay people more to get them to work hard. And that's
02:54:49 a parallel between those two theories, which are
02:54:51 different theories.
02:54:52 Q. So are you saying -- but you -- so you are
02:54:55 saying you don't agree with it because you more fall
02:55:02 into the pay more to work harder rather than the gift
02:55:05 exchange camp. And I apologize for speaking loosely.
02:55:07 I'm trying to make --
02:55:09 A. I'm just saying I think it's very -- you know,
02:55:11 I think that's -- to say that it's common sense, I think
02:55:16 it's common sense that people get paid more to work
02:55:18 harder, which of these mechanisms is at play I don't
02:55:22 think is part of the common sense story.
02:55:24 Q. Do you agree that this article is fairly
02:55:26 seminal in the history of the information of economic --
02:55:30 excuse me, the history of the economics of information?
02:55:33 A. I mean, they certainly didn't originate this

03:04:43 in the supply of workers, but no change in the demand.
03:04:46 What's going to happen to the market wage?
03:04:50 A. That will push the market wage downward.
03:04:52 Q. Okay. And will that apply to all the workers
03:05:01 in the market?
03:05:02 A. Over time it will apply to all the workers in
03:05:05 the market, just like there is in any market that has
03:05:08 contracts. It will take time. Sometimes people have a
03:05:11 contract, they don't immediately adjust the price of
03:05:14 every contract.
03:05:15 Q. So suppose that you have 1 million workers --
03:05:20 suppose you have 1 million workers, and suppose one more
03:05:25 worker is added to the million and demand is held
03:05:30 constant, what's going to happen to the market wage?
03:05:33 A. There is going to be some change, probably not
03:05:36 one we could perceive. And the trouble is, you would
03:05:39 like to say, well, there wouldn't be any change, but
03:05:42 then you just keep adding workers one at a time and ask
03:05:45 when I should stop, and obviously adding one of them --
03:05:48 it's the straw who broke the camel's back problem. It's
03:05:52 hard to identify which piece of straw is going to break
03:05:55 the camel's back, but I know if I put enough on there
03:05:58 he's going to collapse.
03:05:59 Q. Okay. So if you put one -- if you add one
03:06:02 worker, that could have a small, possibly not

the matrix that we see at the back of this attachment.

Q. And are the -- is the path information regarding the staffing wiki and guidelines set forth in Ms. Montesino's email?

A. Is the path guideline?

Q. I'm sorry. She writes, "The staffing wiki is http://," and there is path information. Do you see that?

MR. RILEY: I think he's getting hung up on "path."

MR. SAVERI: Q. I'm sorry. Maybe I'm using the wrong word.

A. There is a URL address.

Q. I'm sorry. Is that the URL address for the staffing wiki where it could be found on the Apple intranet?

A. Based on what this email is saying, this -- I believe it is.

Q. Okay. I'm done with that one.

(Whereupon, Exhibit 269 was marked for identification.)

[redacted]

05:45:00 [redacted]
05:45:03 [redacted]
05:45:04 [redacted]
05:45:09 [redacted]
05:45:09 [redacted]
05:45:11 [redacted]
05:45:15 [redacted]
05:45:16 [redacted]
05:48:45 [redacted]
05:48:46 [redacted]
05:48:50 [redacted]
05:48:53 [redacted]
05:48:55 [redacted]
05:49:00 [redacted]
05:49:06 [redacted]
05:49:14 [redacted]
05:49:17 [redacted]
05:49:19 [redacted]
05:49:25 [redacted]
05:49:27 [redacted]
05:49:32 [redacted]
05:49:37 [redacted]
05:49:41 [redacted]
05:49:44 [redacted]
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05:52:16 [redacted]
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05:52:22 [redacted]
05:52:25 [redacted]
05:52:26 [redacted]
05:52:29 [redacted]
05:52:32 [redacted]
05:52:34 [redacted]

companies would perform a job analysis?

A. Oh, a lot of times to know the kind of people they need to have perform those jobs. And, you know, what kinds of skills are required for the workers that they should hire into those jobs. Help them better administer their internal assignments in hiring.

Q. So I'd like you to consider a situation where an employer has a mix of employees. Some of them are being paid minimum wages, some of them are not. The minimum wage goes up. In that situation, will the wages of workers earning above the minimum wage also go up?

A. Is it an empirical matter? Not much. There is very little push when a minimum wage goes up. There is a small amount very close to the minimum, but I think most of the empirical research has said that there is not much push for people above the minimum.

Q. But it does go up a little bit?

A. That's what you would expect even absent equity.

Q. So I take it your position is that this change in wages does not demonstrate the existence of internal equity?

A. Not in the least, no. That would be perfectly well explained by other forces. In fact, since it happens across firms and not just within firms, it's

03:13:08 hard to see why it would be associated with equity.
03:13:16 Q. So let's talk about the defendants. Let's turn to paragraph 81.
03:13:46 So I'd like to, I guess, draw your attention to the next page. Page 45. So where 81 carries over -- well, the sentence beginning -- I'm sorry, the sentence beginning on 44 where it begins, "Based on my interviews with compensation managers," and then continues over.
03:14:03 Do you see that sentence?
03:14:04 A. Yes.
03:14:05 [redacted]

03:15:03 Q. Are those two things inconsistent?
03:15:05 A. No. They're not -- they're not inconsistent. But it does mean if people are more valuable, that you can pay them more without paying other people more.
03:15:17 Q. So --
03:15:18 A. Certainly people that are distantly related within the firm.
03:15:29 Q. So in the -- then you describe some different approaches to compensation at the different firms. And I guess what I'm wondering is, are you -- are you saying here -- and then, I'm sorry -- and then you conclude here, the last sentence is, "This implies that any impact working through a somewhat rigid wage structure would require employer-specific analyses that Dr. Leamer does not conduct."
03:16:06 Are you saying that the flexibility within the defendants' compensation systems, are you saying that rules out the possibility of common impact in this case, or are you saying that the flexibility means that there is an analysis that needs to be performed that wasn't performed?
03:16:23 A. I would say it invalidates Professor Leamer's analysis is really what it does. That -- when you look at the data, there is substantial flexibility that they had and exercised in setting individual compensation and

04:02:05 these defendants for setting these kinds of budgets for
04:02:09 salary increases?
04:02:10 A. What do you mean by the ultimate authority?
04:02:11 Who it is?
04:02:12 Q. Yeah. Who it is.
04:02:14 A. I think it varies. I think, you know, people
04:02:17 [redacted]
04:02:40 [redacted]
04:02:42 [redacted]
04:02:50 [redacted]
04:02:55 [redacted]
04:02:57 [redacted]
04:02:59 [redacted]
04:03:01
04:03:03

[redacted]

MR. GLACKIN: Q. Did the -- did any of the declarations that you relied on describe the process by which the overall budget for salary increases was set at any of the defendants?

A. I don't know if they went into any detail of the process. I don't know. I'd have to go back and read them when they said the detail. But they talked [redacted]

Q. Okay. All right. So let's talk about paragraph 87. So you describe here what I sort of call your zero sum phenomenon. Do you agree with that characterization of it?

A. I don't know if zero -- it doesn't have to be

04:04:37 literally zero sum. But the basic idea is if you have a fixed budget, you give more to some people, that could lead to other people getting less.

04:04:45 Q. So what implication, if any, does that have for the validity of Dr. Leamer's theory?

04:04:56 A. Well, it has to do with whether, in fact, a reduction of cold calling, for example, how that would affect different people at the company. So that if, as a result, somebody didn't get a raise, or think of it the other way, they would have gotten a raise, whether that would lead other people to get raises as well or, in fact, would have led other people to get smaller raises. And that's -- that's the sense to which it would be relevant.

04:05:24 It would be from the impact that his theory would have that this would be a force, again, working in the opposite direction of his impact theory.

04:05:35 Q. Do you agree that information possessed by the manager or the employees that you've used in the example here could be communicated to other people in the company in order to provide upward pressure on the overall budget for salary increases?

04:05:51 A. Well, I mean, that's possible. In some case you could have some impact along those lines. But again, you have to go back to what we're talking about

04:06:02 here. That in terms of the overall flow of information
04:06:07 into the firm, the agreements were talking about here
04:06:14 were a very small part of the overall picture, given
04:06:19 that the vast majority of the recruiting and hiring
04:06:22 activity involved other firms, and that would have been
04:06:26 unaffected or, in fact, would have gone somewhat in the
04:06:29 opposite direction.
04:06:30 Q. So let me pose the question this way. I mean,
04:06:33 it seems to me that you are saying that a problem here
04:06:36 is that if an employee gets a cold call and he -- as a
04:06:42 result of the cold call goes and agitates for a pay
04:06:45 increase, the manager is going to give him a pay
04:06:48 increase and maybe a few other people in his group a pay
04:06:51 increase, he's going to have to give smaller increases
04:06:54 to the rest of the people in the group and that might
04:06:56 not make them happy. Is that the problem you are
04:06:57 describing here?
04:06:58 A. No. That that means that some people might
04:07:01 have gotten less as a result of this guy getting more.
04:07:03 Q. So do you agree with me that if you assume that
04:07:08 the overall budget for salary increases is basically
04:07:12 static, that you could conceivably be putting the
04:07:16 manager in a no-win scenario?
04:07:18 A. He's already in that scenario. He's already
04:07:20 got a fixed budget, and he's got to allocate it among

people. This just changes the forces on his allocation. He's always in that mode. He's always in the mode of having to allocate the increases he has available among his employees.

Q. Well, let me ask the question differently. Let's suppose you are this manager, and these things happen, and you look at your budget for salary increases, and you look at what your employee is asking you for, and you look at -- you compare this employee to the other employees in your group, and you realize that you can't make everyone happy. That you are either going to have to not give this employee what he wants, or you are going to have to not give a wage to his colleagues or her colleagues that's going to make them happy. What would you do? What would you do in that situation as a manager?

A. You are already in that situation. I mean, typically as a manager, you are not making everybody happy. I mean, people --

Q. How do you know that?

A. Because that's --

MR. MITTELSTAEDT: I don't think he was done with his answer.

THE WITNESS: That's the nature of people. People are -- you know, the nature of people is that

04:08:30 it's not that they're always happy. Any time you have a constraint that you can only give out so much in the way of raises to people, you know, you are going to be -- you are going to be in a position where you are making tradeoffs.

04:08:44 You are going to be saying, well, I can give this person more but that means giving this other person less. I mean, it's not like suddenly that emerges. That existed before.

04:08:54 Q. So is your answer that as that hypothetical manager, you would simply settle for the fact that you were going to have to make at least some of your workers unhappy?

04:09:07 A. That -- I think I'm going to realize that I don't have all the means in the world that I want. That I'm going to have to make some choices. Managers always have to do that. I mean, that's the nature of business. That you're -- you're always making tradeoffs. I mean, I don't see why that would be so novel that people would say, look, I got to live within my means.

04:09:37 Q. Well, is it -- would it be novel or surprising to you that a manager would go to his or her supervisor and say -- or the director of human resources and say I need a bigger budget, or I need extra money? Does that seem novel or surprising to you?

04:09:52 A. He could do that, but the guy might say no, in
04:09:55 which case some people are going to have to take less.
04:09:58 Q. I agree. But my point is, is that wouldn't it
04:10:01 be logical for a manager, in that situation, to ask for
04:10:05 more money, if he -- let me add one more factor so we
04:10:07 can make this completely clear.
04:10:09 Let's add the factor that the manager evaluates
04:10:12 his employees, he determines that with only a small
04:10:17 amount of additional money he will be able to retain all
04:10:19 of them and avoid any risk that they'll leave. He'll be
04:10:22 able to make them all happy, and this is a very
04:10:25 profitable group for the company. What would a rational
04:10:28 manager do in that situation?
04:10:31 MR. HINMAN: Objection. Incomplete
04:10:32 hypothetical.
04:10:34 MR. TUBACH: Calls for speculation. Lacks
04:10:35 foundation.
04:10:36 MR. GLACKIN: I think you all could have just
04:10:37 trusted Mr. Hinman. I think that highly of him.
04:10:41 Q. Go ahead, Dr. Murphy. What would you do?
04:10:42 A. What would I do if I was the manager? I would
04:10:44 have to know the details of the situation.
04:10:46 Q. What else would you need to know?
04:10:48 A. Like how likely is it that I'm going to get
04:10:50 this increase. Do I want to try to get one next year if

04:10:53 I can't get one this year. I mean, presumably there is
04:10:57 some constraint on what I can ask for. That's why I'm
04:10:59 living in the world I am. And, you know, you don't --
04:11:02 you are not always -- sometimes you might go ask,
04:11:05 sometimes you won't. Depends on the institutional
04:11:08 structure I'm in. They might have told me the budget
04:11:11 and I know they're very inflexible.
04:11:13 And there is a good reason to be inflexible,
04:11:15 because once you start telling them I'm going to be
04:11:18 flexible, then everybody starts asking. And it's a very
04:11:21 good policy for a company to say look, you know, we're
04:11:23 going to give you a budget and we're really not going to
04:11:26 change it. And that can greatly simplify your
04:11:30 administrative life. It's what people call rules,
04:11:33 rather than discretion.
04:11:36 Q. So will you at least admit that it is one --
04:11:39 that one logical option, a manager in that situation
04:11:42 might consider, would be to go ask for more money either
04:11:44 now or next year?
04:11:48 MR. TUBACH: Same objection.
04:11:49 THE WITNESS: That's one possible response
04:11:50 somebody could have. But there is still going to be
04:11:53 cases where either the guy says no or he doesn't ask, in
04:11:55 which some people are going to get less because somebody
04:11:59 else got more.

04:12:06 MR. GLACKIN: Q. Now, let's take this
04:12:09 another step, and let's assume that the company
04:12:14 decides that this group does need more money for
04:12:19 whatever reason. Determines that the economics
04:12:20 dictate that this group is going to need some more
04:12:23 money to retain all these valuable employees.
04:12:27 Now, there is two options here, right? One
04:12:30 option would be that that additional money could come at
04:12:32 the expense of other groups in the company. Or the
04:12:35 other option is that the additional money could come
04:12:39 through an increase in the overall salary budget.
04:12:42 Do you agree that those are two
04:12:44 possibilities -- two possible ways that a company could
04:12:46 handle that situation?
04:12:48 MR. TUBACH: Same objections.
04:12:52 THE WITNESS: They could go. They could do
04:12:54 some of both. They could -- and there is a variety of
04:12:58 responses in principle that they could have. But I'm
04:13:06 not quite sure where all this ends up. But let's go
04:13:09 ahead.
04:13:13 MR. GLACKIN: Q. So could I direct you to
04:13:18 paragraph 88. You say, "Dr. Leamer ignores the
04:13:26 fact" -- first sentence of paragraph 88.
04:13:29 "Dr. Leamer ignores the fact that the total
04:13:31 amount budgeted for salary increases generally is based

04:14:47 I'll be a little more pointy here. Are you saying that
04:14:50 the total amount budgeted for salary increases -- now
04:14:54 let's skip along -- is never based on idiosyncratic
04:14:59 information obtained from new hires and separated
04:15:02 employees? I'm trying to understand if you are denying
04:15:04 that that last set of information in the sentence ever
04:15:07 plays a role in the setting of overall budget increases.
04:15:10 A. I don't want to say it would never play a role.
04:15:13 The more idiosyncratic it is, I think the less they
04:15:16 would rely on that. The more systematic it is, the more
04:15:20 they would rely on that.
04:15:21 Q. Did you -- sorry.
04:15:23 A. But that's where I think the realities of the
04:15:26 marketplace here come into play. We're talking about a
04:15:29 case where we had agreements involving a small number of
04:15:32 other places where you could hire from and people who
04:15:35 would hire from your firm. Roughly, if we use hiring as
04:15:39 the benchmark, 99 percent of the destinations and
04:15:44 sources for employees were not subject to or affected by
04:15:49 these agreements. In that world, the information
04:15:53 flowing even through these other channels is largely
04:15:57 going to be unaffected.
04:15:59 Q. So is the relative value of these different
04:16:02 kinds of information discussed in the first sentence of
04:16:05 paragraph 88 something that was addressed in the

declarations that you relied on? I mean, what I'm wondering, is there a declaration I can go to that says this?

MR. MITTELSTAEDT: Objection. Compound.

THE WITNESS: I don't know. I have to go back and read the declarations. It certainly was when we discussed with them in -- I believe a number of these people were deposed, I assume. And I'd have to go back and look at their depositions. But I know people were asked about compensation.

MR. GLACKIN: Q. Well, you didn't cite any deposition transcripts or declarations in support of this sentence with the exception of the citation to the plaintiff's deposition.

[redacted]

04:17:12 MR. GLACKIN: Q. I don't mean to interrupt you, by the way. I really don't. But sometimes you pause a little bit and I think you are done, so then I start talking. But I'm trying very hard not to do that. So I do apologize.

04:17:23 A. I understand.

04:17:31 MR. GLACKIN: Could we have the Donna Morris declaration. Twenty-one.

04:18:09 What will this be?

04:18:11 THE REPORTER: 416.

04:18:13 (Whereupon, Exhibit 416 was marked for identification.)

04:18:16 THE WITNESS: Go ahead.

04:18:17 MR. GLACKIN: Q. Okay. So I'm going to direct your attention to -- this is the declaration of Donna Morris of Adobe Systems, Inc. Okay. And then just to help you out, I'll point you to paragraph 22 as being the paragraph that discusses the budget for merit-based salary increases and promotions.

04:19:00 A. Okay.

04:19:01 [redacted]

04:19:03

04:19:07

04:19:09

04:19:13 [redacted]
04:19:27 Q. So how do you know that?
04:19:30 A. Discussing -- discussions we had in the interviews.
04:19:33 Q. And was that an interview with Ms. Morris or with somebody else?
04:19:39 A. I don't remember who it was. We could look it up. But it was one of their compensation people.
04:19:52 Q. Did you talk to people who were directly involved in the process of setting the salary increase budgets?
04:20:03 A. You know, I don't recall in each case whether they were or not. They talked about the general process. I don't remember if they said they personally were involved.
04:20:12 I know in general, the way the people did it was, again, like I said, there was input from different elements, and they tried to put those together and come up with a salary increase budget.
04:20:26 Q. Okay. Move on.
04:20:37 I'll ask you some questions about your opinions

04:20:39 relating to the regression analysis. What is a
04:20:57 statistical regression, Dr. Murphy? And I'm only asking
04:21:00 you because I want to make sure that as we go forward
04:21:02 we're using some of the same terms and we don't get hung
04:21:05 up on misunderstanding.
04:21:06 A. You mean what's multivariate regression?
04:21:08 That's usually the term that people would use. It's a
04:21:11 statistical technique that's used to estimate the
04:21:17 relationship between a dependent variable and a set of
04:21:21 independent variables.
04:21:26 Q. Are these set of independent variables
04:21:28 sometimes called explanatory variables?
04:21:31 A. Yes, sometimes called explanatory variables.
04:21:33 Q. Is one term -- do those mean the same things,
04:21:36 independent variables and explanatory variables?
04:21:39 A. It's probably some subtle difference, but for
04:21:41 our purpose I think they're close enough.
04:21:44 Q. And the explanatory variables are known
04:21:48 quantities, correct?
04:21:49 A. Well, anything you put in your statistics
04:21:51 better be a known quantity, otherwise it's pretty hard
04:21:55 to use it.
04:21:56 Q. I was trying to differentiate from the
04:21:58 dependent variable. The dependent variable is the thing
04:22:00 you are seeking to understand, correct?

05:00:19 A. But this is a separate variable in a different
05:00:22 dimension. This is actually saying the revenue
05:00:25 variables would be -- would be -- have a different
05:00:27 coefficient. We reestimated his model allowing the
05:00:31 conduct variables to have different effects. So this is
05:00:35 actually the story why the revenue variable would have
05:00:37 different effects.
05:00:38 It was in response to your point, which is you
05:00:40 said, well, he controlled for revenues, wouldn't that
05:00:42 capture it. And I was explaining why it wouldn't.
05:00:46 Q. So do we need -- are you saying he needs to run
05:00:50 a different -- that the regression ought to include a
05:00:53 different revenue variable for every firm?
05:00:56 A. You know, I'm -- that's not what I'm saying.
05:01:01 I'm saying if you look at his regression and you look at
05:01:04 the exercise he's trying to engage in, he's looking at
05:01:06 conduct that affected a small part of the overall
05:01:09 marketplace. He is going to then try to estimate the
05:01:13 average effect, which clearly doesn't even get at
05:01:16 whether there is a class-wide effect. It's -- the
05:01:20 regression, at best, is going to do something about an
05:01:23 average. And he does that average regression, he's
05:01:26 going to capture any variables that are varying over
05:01:28 that time period.
05:01:30 And there is just lots of things that affect

05:01:34 firm-level performance, like the movies at Pixar, and
05:01:37 PCs at Intel. And the things that drive Intel and the
05:01:41 things that drive Pixar are different. And, you
05:01:46 know -- and to say I'm going to use that variation to
05:01:50 identify the impact of something that had that, you
05:01:55 know, small of a scope in terms of the overall
05:01:58 marketplace, I think is just -- is not going to be
05:02:02 successful. And you can see it in the precision of his
05:02:05 estimates. His estimates -- it's not even that they're
05:02:10 necessarily biased one way or the other. Likely are,
05:02:12 but that's not even critical.
05:02:14 What's critical is that the precision is just
05:02:16 so low. They're just -- it's not a reliable method for
05:02:22 estimating the effects. Even the average effects. Let
05:02:26 alone showing that there is class-wide effect, which is
05:02:29 the subject of our inquiry here.
05:02:33 Q. So one of the variations on the regression you
05:02:39 ran included adding the S&P 500 stock index, correct?
05:02:43 A. Yes. That was certainly a variable we said you
05:02:47 could add. This was more to illustrate, you know, the
05:02:51 sensitivity of the regression results.
05:02:54 Q. Is your opinion that the S&P 500 index that you
05:03:00 used is a relevant variable for this regression, or is
05:03:05 it an irrelevant variable?
05:03:07 A. I don't think it would necessarily be

05:03:12 irrelevant.
05:03:12 (Reporter clarification.)
05:03:13 THE WITNESS: It wouldn't necessarily be
05:03:13 irrelevant. Because it certainly can capture
05:03:16 macroeconomic elements. We know the stock market is one
05:03:19 of the indicators of economic performance.
05:03:24 MR. HINMAN: Can I just interrupt, because I --
05:03:27 there was a would and a -- or a wouldn't, and a relevant
05:03:30 and an irrelevant that I think the reporter was having
05:03:33 some trouble with.
05:03:34 So can you maybe read the question back or --
05:03:39 THE WITNESS: It would not be an irrelevant
05:03:40 variable is what I would say.
05:03:42 MR. HINMAN: Thank you.
05:03:43 MR. GLACKIN: Thank you.
05:03:46 Q. Does that mean it's a relevant variable?
05:03:50 A. I think -- I think --
05:03:51 Q. I'm sorry. You know, the statisticians and
05:03:54 economists came up with these terms, not me.
05:03:59 A. You know, I think macroeconomic factors are one
05:04:01 thing you would be concerned about driving estimates in
05:04:04 this case. And the stock market is one of those
05:04:09 macroeconomic variables you can include.
05:04:12 I don't think it's the solution to the problem
05:04:14 I think fundamentally the problem is the lack of

05:04:17 precision. And the inclusion of that and the way in
05:04:22 which it affects his estimates is just an illustration
05:04:25 of that.
05:04:27 Q. I understand that you don't think that the S&P
05:04:29 500 solves the problem. I get that. My question is, do
05:04:34 you think as a matter of economics, statistics, that the
05:04:37 S&P 500 index variable that you used should be included
05:04:42 in a regression that is attempting to accomplish what
05:04:45 Dr. Leamer is attempting to accomplish?
05:04:47 A. I think you would have to do something to
05:04:48 control for overall macroeconomics. S&P would be one of
05:04:53 the things you could use. But I don't think that's
05:04:55 going to get you to the finish line here. I really
05:04:58 don't.
05:05:01 Q. Is there more than one S&P 500 variable?
05:05:05 A. There --
05:05:06 Q. Among the macroeconomic variables?
05:05:09 A. There are different S&P variables. There is a
05:05:12 total return index, there is a -- just a plain S&P.
05:05:16 There is multiple S&Ps.
05:05:18 Q. Do you know which one you used?
05:05:19 A. I believe we used the S&P 500 total return
05:05:23 index.
05:05:24 Q. To be precise, was it the net total return
05:05:27 index?

05:13:25 fix his regression. This is an exercise showing that -- how his results are sensitive to the period you include, whether you add other variables to the regression.

05:13:39 I mean, it really is a way of showing just how imprecise and unreliable his estimates are. And it was part of that same context.

05:13:47 Q. So if a regression analysis is -- if the results change because a nonsense or irrelevant variable is added, according to you, that shows that the regression is sensitive and imprecise?

05:14:05 A. No. I'm saying that the magnitude changes. There is a substantial change in his results from including just this variable. We know that when you do an analysis, that there is -- that there is lots of factors affecting firm-level compensation that his regression doesn't capture.

05:14:23 The statistical test of that is very strong to say that there are lots of factors not captured by his regression. We just used this as one potential one that he missed.

05:14:37 But the point is that it's not -- it's the level of noise that's left in his regression that's the problem. And if you look at the actual estimates he comes up with, they're basically reflecting the noise in the data. That's the level of estimates he gets. And

05:14:57 it's not telling you what the impact of these agreements
05:15:01 were, it's just unreliable for that purpose given the
05:15:05 level of noise.

05:15:06 Q. Do you think there is something special about
05:15:08 the relationship of the end of the year value for the
05:15:11 S&P 500 to the compensation paid of the defendants?

05:15:17 A. I don't know. You could take other time
05:15:20 periods. And I didn't experiment with different time
05:15:22 periods. But the whole point was just to show,
05:15:28 illustrate really, the more general point. That we know
05:15:31 from his regression results that there are other
05:15:35 determinants of firm-level compensation that are putting
05:15:37 a lot of noise into his estimates. And those -- and
05:15:42 resulting in his estimates being very imprecise and
05:15:47 unreliable estimates of the impact of this conduct. And
05:15:50 this was a variable that helped illustrate that. And
05:15:52 that's the purpose for which it was used.

05:16:06 Q. So did you investigate why using this variable
05:16:10 has the effect that it has on the regression? Did you
05:16:14 attempt to determine if there was something unusual or
05:16:16 special about the variable that causes it to have this
05:16:19 effect?

05:16:24 A. Not that I recall in particular.

05:16:25 Q. Did you compare it to the -- what would happen
05:16:28 if you used the average daily close of the S&P 500?

05:16:33 MR. HINMAN: Asked and answered, I think.
05:16:34 THE WITNESS: Put the average daily close as
05:16:37 the level? Put the average daily close in there as a
05:16:42 level variable?
05:16:43 MR. GLACKIN: Q. Right. As opposed to --
05:16:44 A. It's a very different -- I don't think -- that
05:16:47 variable doesn't seem to make a whole lot of sense to
05:16:49 me. That would imply some long-run impact that I don't
05:16:54 see why you would have.
05:16:57 Q. How about using the average daily return of the
05:16:59 S&P 500?
05:17:03 A. Well --
05:17:05 Q. Scratch --
05:17:06 A. This is very close to the average daily return,
05:17:08 I think. You can divide my number by, like, 251 or
05:17:12 something and get the average daily return, basically.
05:17:17 MR. GLACKIN: All right. I have more to go.
05:17:21 If you are ready -- want to keep going, let's keep going
05:17:24 and press on. But if you would like a break, we're at a
05:17:27 section break, so if you want to take a break, it's your
05:17:31 decision.
05:17:32 THE WITNESS: Why don't we take a quick section
05:17:35 break.
05:17:37 THE VIDEOGRAPHER: This is end of video No. 6.
05:17:39 The time is 5:18. We're going off the record.

06:00:39 and economics right, I don't see how you get there from
06:00:41 here. And if you are trying to establish common impact
06:00:44 across the firms, you are going to have to go in a
06:00:47 direction.
06:00:48 Now, not wanting to say, well, if you don't
06:00:51 want to add that many variables you can go to the next
06:00:53 one which is 9B, which is where we tried to say well
06:00:56 don't add that many variables. Okay?
06:01:00 Q. So --
06:01:02 A. I'm sorry. Not 9B. 10.
06:01:04 Q. You mean 10?
06:01:05 A. Or it's 11, actually. 11A and 11B. Sorry.
06:01:09 Q. So again, Dr. Murphy, I understand your overall
06:01:14 opinion about Dr. Leamer's report and I respect your
06:01:16 passion about that opinion.
06:01:18 What I'm trying to understand is, is it your
06:01:21 expert opinion that in general, as a matter of just
06:01:24 general statistics, not saying you are admitting
06:01:26 anything about Dr. Leamer's regression, can you run a 33
06:01:31 variable regression off of 63 observations? That's all.
06:01:34 A. I don't think you have enough information to
06:01:36 identify those effects. I don't think you have enough
06:01:38 information to identify the regression he ran.
06:01:42 Q. So in general, I mean, would a -- would a --
06:01:47 would a 33 variable regression run off of 63

06:01:53 observations present the problem of increasing standard
06:01:58 errors that we discussed a while back?
06:02:02 A. Well, it could increase standard errors, but it
06:02:04 would also -- the standard errors were big to begin
06:02:07 with.
06:02:09 Q. We're not talking about this specific
06:02:11 regression, we're talking about in general.
06:02:13 A. Yeah.
06:02:13 Q. As a statistician, would it concern you --
06:02:18 would you be concerned about running a 33 variable
06:02:24 regression off of 63 observations, or does that seem
06:02:26 okay, in general, to you?
06:02:28 A. If you are trying to understand what the data
06:02:29 are, and I think that really is what you learn from
06:02:32 this, is what information are contained in the actual
06:02:36 data that's underlying his regression. And is his
06:02:40 regression picking up a -- an effect that you see there
06:02:43 for each of the firms? I think the data say no. And I
06:02:48 think that's the reason to do it.
06:02:50 It really is a diagnostic on his regression.
06:02:53 It's not like that's the regression you should run and
06:02:55 not his regression. It's a diagnostic on his
06:02:58 regression. It's a way of disaggregating his results,
06:03:03 to see his results broken out by firm, and to see
06:03:06 whether his results are really reflecting something that

06:03:09 the data are saying happened at each of these firms and
06:03:12 the answer is no.

06:03:13 Q. In order for a sensitivity analysis, which I
06:03:16 think you agree is what you are describing, an
06:03:19 alternative regression to test for sensitivity, in order
06:03:21 for that to be valid, must it meet the criteria for an
06:03:26 otherwise sensible regression?

06:03:30 A. I don't think necessarily. Because you are
06:03:31 trying to -- it's like looking at the data. It's like
06:03:34 decomposing it down to the data that go into it. You
06:03:38 are saying I'm getting these estimates, and they're
06:03:40 coming from a bunch of different places. And what I'm
06:03:42 getting is a mix of all these. I want to know what the
06:03:45 pieces look like that come to give me my estimate.
06:03:49 There is nothing wrong with that.

06:03:50 Even though you wouldn't necessarily want to
06:03:51 run that regression as the regression you would rely on
06:03:54 ultimately, you are just trying to understand where you
06:03:56 got the results you got. And that's -- that's what's
06:04:01 done in 9 in the appendix and what's done in Exhibit 11
06:04:08 in the appendix is to really say, well, what is this
06:04:10 saying about what's going on at the individual companies
06:04:12 that's generating his results.

06:04:15 Q. So did you perform this kind of a sensitivity
06:04:17 analysis with respect to your selection of the S&P 500

variable?

A. No. I think -- I'm not putting that forward as the right regression to run. If I wanted to say that was the right regression to run, I would do sensitivity analysis on it.

Q. Well --

A. I put that forward as a different method of showing why his results are not reliable.

Q. Are you saying that we should infer anything from what happens when you include the S&P 500 variable in his regression?

A. I think it illustrates the fact that his regression is sensitive to the inclusion of other variables that reflect the fact -- but it's really a symptom. It's not really the cause of this problem. It's a symptom of the fact that he has a very low level of precision with which he's trying to estimate these effects.

And that low-level precision makes his effects very unreliable. And it's also what makes him sensitive to what time period you use. What makes him sensitive to how you break things out by employer. It's all symptomatic of the same component. And it -- that's what is really going on here.

Q. If you could go back to 9A for a second.

06:10:08 A. It means in a classical statistical problem, it means I achieved a result in terms of my estimate that is typically, say, large relative to what I would expect to happen just by chance.

06:10:26 So in other words, in a world where there were no true effect, or no true difference, for example, in a given sample, you are going to find a difference. Even if the true -- say I had two populations and I was comparing population A and population B, and I had samples from each population, and I was going to calculate the average height from my samples.

06:10:46 Even if the true average height in both populations is the same, in my sample there is going to be a difference in the average height of the sample from population A and the average height from the sample of population B.

06:11:00 The test of statistical significance is did I get a difference in heights across those two populations that was too big to happen just by chance. And the way we quantify that is to say, did I get a difference in heights that would happen less than 5 percent of the time just by chance. That's really the idea of statistical significance.

06:11:24 Q. Okay. Do you agree that this is a description -- that statistical significance is a

description of how certain a statistical result is?

A. Yeah. It's not just -- it's a description of how precisely I can estimate something, yeah. Somewhat of a description. I mean, if you are just going to talk about significance and not talk about the components that go into it, then you might say it's -- it could be described in terms of certainty.

Q. Is there any authority for -- well, is it your opinion -- now, again, I don't want to invite you to launch into -- excuse me. I don't want to invite you to a discursive answer of your reviews about Dr. Leamer's regression. I'd really like to stick to answers to the question.

Is it your opinion that in order for a statistical analysis to be reliable, it must produce a statistically significant result?

A. Not necessarily. That doesn't have to be true.

Q. So --

A. But statistical significance is one thing you do look at. And particularly here, you can look at the P values, for example, that show up in the table.

Q. Okay. So where are you directing me to? Are you on your report or Dr. Leamer's report?

A. In my report. So you look at table, say, 22B.

Q. Is this appendix 22B or Exhibit 22B?

06:13:14 A. Exhibit 22B or Exhibit 22A. Either one. We can go with A, it's the first one.

06:13:20 Q. Uh-huh. Okay.

06:13:22 A. So these would be the P values, which is the probability that that you get a number at least that big just by chance. And you can see for lots of these, there -- these are from his estimates that restrict the coefficients across. You get a lot of these P values 50 percent, which means it's a number -- I'm going to get a number that size half the time just by chance. Kind of what those numbers mean.

06:13:51 Q. You say there is a lot that are 50 percent?

06:13:53 A. I'm saying there is ones that are 50 percent, 30 percent, 40 percent. There is a few that are smaller. But, you know, the majority of them are, you know, 30 percent or higher. That means a third of the time I'm going to get a number like that just by chance.

06:14:20 Q. So --

06:14:27 A. And remember, this is just looking for an average effect, let alone asking the question whether there is a common effect.

06:14:35 Q. So if I wanted to look at some authority for the proposition that these P values are a basis to reject Dr. Leamer's regression analysis, what authority should I look at?

I, Gina V. Carbone, Certified Shorthand Reporter licensed in the State of California, License No. 8249, hereby certify that the deponent was by me first duly sworn and the foregoing testimony was reported by me and was thereafter transcribed with computer-aided transcription; that the foregoing is a full, complete, and true record of said proceedings.

I further certify that I am not of counsel or attorney for either of any of the parties in the foregoing proceeding and caption named or in any way interested in the outcome of the cause in said caption.

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In witness whereof, I have hereunto set my hand this day: December 6, 2012.

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GINA V. CARBONE

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